

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Canceled)
2. (Canceled)
3. (Currently Amended) An apparatus for measuring local streaming potential of a membrane for monitoring the progress of membrane fouling in the course of filtration of a hollow-fiber membrane, wherein said apparatus comprises
a feed tank to reserve feed solution in a state of colloidal suspension;
a delivery pump to deliver said feed solution;
a membrane module with a plurality of hollow-fibers through which said feed solution is introduced and released;
at least one electrode installed externally of a hollow-fiber located at the inlet of the membrane module;
at least one electrode installed inside the hollow-fiber located at the inlet of the membrane module;
at least one electrode installed externally of a hollow-fiber located at the outlet of the membrane module;
at least one electrode installed inside the hollow-fiber located at the outlet of the membrane module;
~~internal and external electrodes installed respectively on an upper and a lower regions of a membrane pore of a hollow fiber at inlet and outlet of the membrane module and are used in measuring streaming potential;~~

a means to measure physical properties of said feed solution being introduced into a membrane module;

a pressure meter that measures the transmembrane pressure difference both at the inlet and outlet of a membrane module;

a flow-control valve used to adjust the transmembrane pressure difference ~~present across the membrane pores~~;

a means to display and record data obtained from the above-mentioned measuring devices; and

a means to calculate the value of zeta potential (ζ) of a hollow-fiber membrane.

4. (Previously Presented) The apparatus according to claim 3, wherein said hollow-fiber membrane is bundled with an epoxy resin potting to separate feed solution and permeate.

5. (Original) The apparatus according to claim 3, wherein the electrodes installed inside said hollow-fiber membrane are wire-type Ag/AgCl electrodes of 0.25 mm in diameter that cover about 6% of the total internal cross-sectional area while the electrodes installed outside said hollow-fiber membrane are spiral electrodes of the same material.

6. (Currently Amended) The apparatus according to claim 3, wherein said ~~minute flow-control valve can perform a fine adjustment up to~~ may be able to precisely control the flow rate to the extent of 0.3% of the maximum flow rate.

7. (Currently Amended) The apparatus according to claim 3, wherein the data obtained from the devices mentioned in claim 3 are displayed and recorded using

a multi-channel digital multi-meter and a computer, and the value of zeta potential (ζ) of the hollow-fiber membrane is calculated by using the equation (1),

$$\frac{\Delta V}{\Delta P} = \frac{\epsilon \zeta}{\lambda \eta} \quad (1)$$

wherein ΔV is streaming potential difference; ΔP is pressure difference; ϵ is the dielectric constant; λ is the conductivity of a solution; and η is the viscosity of a solution.